

WHAT IS CLAIMED IS:

1. A communication device for carrying out communications with other communication devices by using a prescribed control protocol on a network, comprising:
 - a tentative address determination unit configured to determine a tentative address which is a candidate for one of addresses managed by the prescribed control protocol;
 - a packet transmission unit configured to transmit an address initialization packet containing the tentative address to the network, in order to check presence/absence of another communication device which is using an address identical to the tentative address;
 - an address determination unit configured to determine the tentative address as an address of the communication device, when no response packet from another communication device indicating that an address identical to the tentative address is currently used is received within a first prescribed period of time since transmitting the address initialization packet; and
 - a transmission prohibition unit configured to prohibit a transmission of the address initialization packet within a second prescribed period of time since receiving the address initialization packet transmitted from another communication device.
2. The communication device of claim 1, wherein the tentative address determination unit uses a previously used address as the tentative address if the previously used address is maintained, or uses a part of a hardware address of the communication device as the tentative address otherwise.
3. The communication device of claim 1, further comprising:

an address changing unit configured to change the tentative address to another address when the another communication device which is currently using an address identical to the tentative address exists;

5 wherein the packet transmission unit also transmits an address confirmation packet containing a changed tentative address obtained by the address changing unit to the network, in order to check presence/absence of another communication device which is using an address identical to
10 the changed tentative address;

the address determination unit determines the changed tentative address as an address of the communication device, when no response packet from another communication device indicating that an address identical to the changed
15 tentative address is currently used is received within the first prescribed period of time since transmitting the address confirmation packet; and

the transmission prohibition unit also prohibits a transmission of the address initialization packet or the
20 address confirmation packet within the second prescribed period of time since receiving the address confirmation packet transmitted from another communication device.

4. The communication device of claim 3, wherein the
25 packet transmission unit also transmits a response packet for the address initialization packet of the address confirmation packet transmitted from another communication device, after a period of time correlated to an address value of the communication device has elapsed since
30 receiving the address initialization packet of the address confirmation packet.

5. The communication device of claim 4, wherein the
packet transmission unit uses the period of time correlated
35 to the address value of the communication device which is

obtained by multiplying the address value of the communication device with a prescribed period of time.

8. The communication device of claim 3, wherein the
5 packet transmission unit transmits at least one of the address initialization packet and the address confirmation packet to the network for a plurality of times.

7. The communication device of claim 1, wherein the
10 communication device uses the prescribed control protocol which is an Echonet protocol.

8. A communication device for carrying out communications with other communication devices by using a prescribed
15 control protocol on a network, comprising:

a packet transmission unit configured to transmit an address server detection request packet for requesting to become an address server which has a right to determine addresses managed by the prescribed control protocol;

20 a server determination unit configured to determine the communication device as the address server, when no response packet from another communication device indicating that it is the address server is received within a first prescribed period of time since transmitting the
25 address server detection request packet; and

a transmission prohibition unit configured to prohibit a transmission of the address server detection request packet within a second prescribed period of time since receiving the address server detection request packet
30 transmitted from another communication device.

9. The communication device of claim 8, wherein the packet transmission unit transmits the address server detection request packet to the network for a plurality of
35 times.

10. The communication device of claim 8, wherein the communication device uses the prescribed control protocol which is an Echonet protocol.

5

11. A communication method of a communication device for carrying out communications with other communication devices by using a prescribed control protocol on a network, the communication method comprising:

10 determining a tentative address which is a candidate for one of addresses managed by the prescribed control protocol;

transmitting an address initialization packet containing the tentative address to the network, in order
15 to check presence/absence of another communication device which is using an address identical to the tentative address;

determining the tentative address as an address of the communication device, when no response packet from another
20 communication device indicating that an address identical to the tentative address is currently used is received within a first prescribed period of time since transmitting the address initialization packet; and

prohibiting a transmission of the address
25 initialization packet within a second prescribed period of time since receiving the address initialization packet transmitted from another communication device.

12. The communication method of claim 11, wherein the
30 communication device uses the prescribed control protocol which is an Echonet protocol.

13. A communication method of a communication device for carrying out communications with other communication
35 devices by using a prescribed control protocol on a

network, the communication method comprising:

transmitting an address server detection request packet for requesting to become an address server which has a right to determine addresses managed by the prescribed control protocol;

determining the communication device as the address server, when no response packet from another communication device indicating that it is the address server is received within a first prescribed period of time since transmitting the address server detection request packet; and

prohibiting a transmission of the address server detection request packet within a second prescribed period of time since receiving the address server detection request packet transmitted from another communication device.

14. The communication method of claim 13, wherein the communication device uses the prescribed control protocol which is an Echonet protocol.

20

15. A computer program product for causing a computer to function as a communication device for carrying out communications with other communication devices by using a prescribed control protocol on a network, the computer program product comprising:

a first computer program code for causing the computer to determine a tentative address which is a candidate for one of addresses managed by the prescribed control protocol;

a second computer program code for causing the computer to transmit an address initialization packet containing the tentative address to the network, in order to check presence/absence of another communication device which is using an address identical to the tentative address;

a third computer program code for causing the computer to determine the tentative address as an address of the communication device, when no response packet from another communication device indicating that an address identical to the tentative address is currently used is received within a first prescribed period of time since transmitting the address initialization packet; and

a fourth computer program code for causing the computer to prohibit a transmission of the address initialization packet within a second prescribed period of time since receiving the address initialization packet transmitted from another communication device.

16. The computer program product of claim 15, wherein the communication device uses the prescribed control protocol which is an Echonet protocol.

17. A computer program product for causing a computer to function as a communication device for carrying out communications with other communication devices by using a prescribed control protocol on a network, the computer program product comprising:

a first computer program code for causing the computer to transmit an address server detection request packet for requesting to become an address server which has a right to determine addresses managed by the prescribed control protocol;

a second computer program code for causing the computer to determine the communication device as the address server, when no response packet from another communication device indicating that it is the address server is received within a first prescribed period of time since transmitting the address server detection request packet; and

a third computer program code for causing the computer

to prohibit a transmission of the address server detection request packet within a second prescribed period of time since receiving the address server detection request packet transmitted from another communication device.

5

18. The computer program product of claim 17, wherein the communication device uses the prescribed control protocol which is an Echonet protocol.

10

15

20

25

30

35